Data Validation Checklist
Semivolatile Organic Analyses

Project:	35TH Avenue Superfund Site	Project No:	60430028; 1
Laboratory:	TestAmerica – Savannah, GA	Job ID.:	680-115692-4
Method:	SW-846 8270D Low-Level (PAH)	Associated Samples:	Refer to **Attachment A** (Sample Summary)
Matrix:	Soil	Samples Collected:	08/13/2015
Reviewer:	Kelly Brannigan, URS Group, Inc.	Date:	01/28/2016
Concurrence[1]:	Martha Meyers-Lee, URS Group, Inc.	Date:	02/02/2016

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
1. Were sample storage and preservation requirements met? If temperature >6°C, then J/UJ flag results.	✓				
2. Were all COC records signed and integrity seals intact, indicating that COC was maintained for all samples?		✓		Sample CV0511S-GS-24, which was collected 8/13/2015 at 08:35, was received by the laboratory for analysis, but not listed on the COC record. The sample was logged into the Laboratory Information Management System under laboratory sample ID 680-115692-70.	
3. Were there any problems noted in laboratory data package concerning condition of samples upon receipt?		✓			
4. Do any soil samples contain more than 50% water? If yes, then results are to be reported on a wet-weight basis.		✓			
5. Were holding times met (≤7 and 14 days from collection to extraction for aqueous and solid samples, respectively; ≤40 days from extraction to analysis)? If not, then J/UJ flag sample results. If grossly (2x) exceeded, then flag J/R.	✓				
6. Were results for all project-specified target analytes reported?	✓				
7. Were project-specified Reporting Limits achieved for undiluted sample analyses?	✓				
8. Were samples with analyte concentrations exceeding the calibration range of the instrument re-analyzed at a higher dilution? If not, then J flag sample result.	✓				
9. Was a method blank extracted with each batch (i.e., one per 20 samples, per batch, per matrix and per level)?	✓				
10. Were target analytes detected in the method blank?		✓			
11. Are equipment/rinsate blanks associated with every sample? If no, note in DV report.		✓		According to the QAPP, a rinsate blank is to be collected after each decontamination event, which occurs once per week per the client. A rinsate blank is not associated with this sampling event. Blank contamination will be evaluated based on method blank results.	
12. Were target analytes detected in equipment/rinsate blanks?			✓		
13. Were analytes detected in samples below the blank contamination action level? If yes, U flag positive sample results <5x associated blank concentration (10x for common blank contaminants–phthalates)			✓	Target analytes were not detected during the analysis of the method blank.	

[1] Independent technical reviewer

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
14. Is a field duplicate associated with this Job?		✓			
15. Was precision deemed acceptable as defined by the project plans?			✓		
16. Were DFTPP ion abundance criteria (i.e., Table 3 of SW-846 8270D) met? If no, professional judgment may be applied to determine to what extent the data may be utilized.	✓			Alternate tuning criteria were used by the laboratory (i.e., EPA Method 525.2). All ion abundance criteria were met per EPA Method 525.2.	
17. Were samples analyzed within 12 hours of the DFTPP tune? If no, professional judgment may be applied to determine to what extent the data may be utilized.	✓				
18. Were initial and continuing calibration standards analyzed at the proper frequency for each instrument? • Ensure that a minimum of five standards are used for the initial calibration. If no, use professional judgment to determine the effect on the data and note in the reviewer narrative. • An initial calibration is to be associated with each sample analysis. • A continuing calibration standard is to be analyzed for every 12 hours of sample analysis per instrument.	✓			• Instrument ID: CMSK • Initial Calibration: 08/13/2015 • ICV: 08/13/2015 @ 20:38 • CCV: 08/19/2015 @ 12:12[2] • Instrument ID: CMSY • Initial Calibration: 08/12/2015 • ICV: 08/12/2015 @ 17:06 • CCV: 08/20/2015 @ 13:30[3]	
19. Were calibration results within laboratory/project specifications? • ICAL (Criteria: ≤20 mean %RSD (≤50% for poor performers), OR r≥0.995, OR r^2≥0.99, and RRF ≥0.050 (≥0.010 for poor performers)): o If %RSD>20 (>50% for poor performers), or r <0.995, or r^2 <0.995, then J flag positive results and UJ flag non-detects o If mean RRF <0.050 (<0.010 for poor performers), then J flag positive results and R flag non-detects (unless the lab analyzed a detectability check standard) • ICV and CCV (ICV Criteria: ≤ ±30%D; CCV Criteria: ≤ ±20%D (≤50% for poor performers) and RF ≥0.050 (≥0.010 for poor performers)): o If %D> Control Limit (>50% for poor performers), then J flag positive results and UJ flag non-detects o If RF <0.050 (<0.010 for poor performers), then UJ flag non-detected semivolatile target compounds		✓		**Instrument CMSK:** • ICV of 08/13/2015 @ 20:38 (ICV 680-396036/9): o 1,1'-Biphenyl @ 26.8%D (Lab: ≤20, Project: ≤30). None[4] o Dibenzofuran @23.0%D (Lab: ≤20, Project: ≤30). None[4] o Fluorene @ 22.2%D (Lab: ≤20, Project: ≤30). Positive bias. None[5] o Fluoranthene @ 23.9%D (Lab: ≤20, Project: ≤30). Positive bias. None[5] o Dibenzo(a,h)anthracene @ 24.9%D (Lab: ≤20, Project: ≤30). Positive bias. None[5] o Benzo(g,h,i)perylene @ 22.1%D (Lab: ≤20, Project: ≤30). Positive bias. None[5] • CCV of 08/19/2015 @ 12:12 (CCV 680-396964/2): o Dibenz(a,h)anthracene @ -22.5%D (Lab/Project: ≤20). Negative bias. Associated sample results[2] are estimated (J/UJ flagged). o Fluoranthene @ -21.4%D (Lab/Project: ≤20). Negative bias. Associated sample results[2] are estimated (J/UJ flagged). o Indeno[1,2,3-cd]pyrene @ -32.3%D (Lab/Project: ≤20). Negative bias. Associated sample results[2] are estimated (J/UJ flagged).	J/UJ
20. Was a LCS prepared for each batch and matrix?	✓				

[2] Associated samples: 680-115692-61 through -63, -66, -67, and -69
[3] Associated samples: 680-115692-64, -65, -68, and -70
[4] Qualification of data is not required, as the analyte is not a target analyte; project specifications were also met.
[5] Qualification of data is not required, as project specifications were also met.

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
21. Were LCS recoveries within lab control limits? If no, J flag positive results when %R >Upper Control Limit (UCL) and J/R flag results when %R <Lower Control Limit (LCL).	✓			The indeno(1,2,3-cd)pyrene result reported for samples 680-115692-64, -65, -68, and -70 were * flagged by TestAmerica to indicate that the LCS or LCSD recovery did not meet control limits; however, this is not correct. Reported LCS recoveries met control limits; qualification of data is not required.	
22. Were LCS/LCSD RPD within lab specifications? If no, J flag positive results and UJ flag non-detects			✓	LCS only	
23. Was a MS/MSD pair extracted at the proper frequency (one per 20 samples per batch)?	✓				
24. Is the MS/MSD parent sample a project-specific sample?	✓			Batch 396563: 680-115692-61 (CV0511AA-CS-24), MS/MSD	
25. For all analytes with native sample concentrations < 4 x spiking level, were MS and MSD recoveries within laboratory/project specifications? *Only QC results for project samples that are reported under this Job ID are evaluated.* • If the native sample concentration > 4x spiking level, then an evaluation of interference is not possible. • If either MS or MSD recovery meets control limits, qualification of data is not warranted. • MS and MSD %R<10: J and R Flag positive and ND results, respectively • MS and MSD %R >10 and <LCL: J Flag positive and UJ flag non-detect results • MS and MSD R% >UCL (or 140): J Flag positive results	✓				
26. For all analytes with native sample concentrations < 4 x spiking level, were laboratory criteria met for precision during the MS and MSD analyses? *Only QC results for project samples that are reported under this Job ID are evaluated.* • If the native sample concentration > 4x spiking level, then an evaluation of interference is not possible. • If %RPD > UCL, J flag positive result and UJ flag non-detect result.	✓				
27. Were surrogate recoveries within lab/project specifications? • If %R for 1 Acid or BN surrogates <10, then J flag positive and R flag non-detect associated sample results (i.e., acid or BN results) • If 2 or more Acid or BN %R >UCL, then J flag positive associated sample results (i.e., acid or BN results) • If 2 or more Acid or BN %R ≥10%, but <LCL, then J flag positive and UJ flag non-detect associated sample results (i.e., acid or BN results) • If 2 or more Acid or BN , with 1 %R >UCL and 1 %R ≥10%, but <LCL, then J flag positive and UJ flag non-detect associated sample results (i.e., acid or BN results)		✓		Surrogate o-terphenyl was not recovered (0%) during the diluted analysis of samples 680-114892-62 and -69. Qualification of sample results is not warranted, as the surrogate compound was diluted out of the samples.	
28. Were internal standard (IS) results within lab/project specifications?	✓				

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
• If IS area counts are less than 50% of the midpoint calibration standard, then J flag positive and UJ flag non-detect associated sample results • If IS area counts are greater than 100% of the midpoint calibration standard, then J flag positive results • If extremely low area counts are reported or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated, J flag positive and R flag non-detect results • If retention time of sample's internal standard is not within 30 seconds of the associated calibration standard, R flag associated data. • The chromatographic profile for that sample must be examined to determine if any false positives or negatives exists. For shifts of large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results need not be qualified as R, if mass spectral criteria are met.					
29. Were lab comments included in report?	✓			Refer to **Attachment B** (Case Narrative)	

Comments: The data validation was conducted in accordance with the *Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1* (OTIE, October 2012). The data review process was modeled after the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Organic Methods Data Review* (EPA, October 1999) and *USEPA CLP NFG for Low Concentration Organic Methods Data Review* (EPA, June 2001). Sample results have been qualified based on the results of the data review process (**Attachment C**). Criteria for acceptability of data were based upon available site information, analytical method requirements, guidance documents, and professional judgment.

DV Flag Definitions:

J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
R	The sample results are unusable. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected above the associated level; blank contamination may exist.
UJ	The analyte was not detected above the limit, and the limit is approximate and may be inaccurate or imprecise.

Acronyms:

%	Percent
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation
°C	Degrees Celsius
BN	Base/Neutral
CCV	Continuing calibration verification
CLP	Contract laboratory program
COC	Chain-of-custody
DFTPP	Decafluorotriphenylphosphine
DV	Data validation
EPA	Environmental Protection Agency
ICAL	Initial calibration
ICV	Initial calibration verification
IS	Internal standard

Data Validation Checklist (Continued)

LCL	Lower control limit
LCS	Laboratory control sample
LCSD	Laboratory control sample duplicate
MS	Matrix spike
MSD	Matrix spike duplicate
NFG	National Functional Guidelines
PAH	Polynuclear aromatic hydrocarbons
QAPP	Quality Assurance Project Plan
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
SW-846	*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA. Available: http://www3.epa.gov/epawaste/hazard/testmethods/index.htm [February 2, 2016]
UCL	Upper control limit

ATTACHMENT A

SAMPLE SUMMARY

SAMPLE SUMMARY

Client: Oneida Total Integrated Enterprises LLC

Job Number: 680-115692-4
Sdg Number: 680-115692-04

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-115692-61	CV0511AA-CS-24	Solid	08/13/2015 0815	08/15/2015 1050
680-115692-61MS	CV0511AA-CS-24	Solid	08/13/2015 0815	08/15/2015 1050
680-115692-61MSD	CV0511AA-CS-24	Solid	08/13/2015 0815	08/15/2015 1050
680-115692-62	CV0511S-GS-6	Solid	08/13/2015 0820	08/15/2015 1050
680-115692-63	CV0511S-GS-12	Solid	08/13/2015 0825	08/15/2015 1050
680-115692-64	CV0511S-GS-18	Solid	08/13/2015 0830	08/15/2015 1050
680-115692-65	CV0511D-GS-6	Solid	08/13/2015 1000	08/15/2015 1050
680-115692-66	CV0511D-GS-12	Solid	08/13/2015 1005	08/15/2015 1050
680-115692-67	CV0511D-GS-18	Solid	08/13/2015 1010	08/15/2015 1050
680-115692-68	CV0511D-GS-24	Solid	08/13/2015 1015	08/15/2015 1050
680-115692-69	CV0511G-CS-6	Solid	08/13/2015 1030	08/15/2015 1050
680-115692-70	CV0511S-GS-24	Solid	08/13/2015 0835	08/15/2015 1050

ATTACHMENT B

CASE NARRATIVE

CASE NARRATIVE
Client: Oneida Total Integrated Enterprises LLC
Project: 35th Avenue Superfund Site
Report Number: 680-115692-4

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 8/15/2015 10:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.8º C and 3.4º C.

CV0511S-GS-24 (680-115692-70): This sample was received, however, it was not listed on the COC. The laboratory was instructed to analyze this sample.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS) LOW LEVEL PAH

Samples CV0511AA-CS-24 (680-115692-61), CV0511S-GS-6 (680-115692-62), CV0511S-GS-12 (680-115692-63), CV0511S-GS-18 (680-115692-64), CV0511D-GS-6 (680-115692-65), CV0511D-GS-12 (680-115692-66), CV0511D-GS-18 (680-115692-67), CV0511D-GS-24 (680-115692-68), CV0511G-CS-6 (680-115692-69) and CV0511S-GS-24 (680-115692-70) were analyzed for Semivolatile Organic Compounds (GC/MS) Low level PAH in accordance with EPA SW846 Method 8270D. The samples were prepared on 08/18/2015 and analyzed on 08/19/2015 and 08/20/2015.

Method(s) 8270D_LL_PAH: The continuing calibration verification (CCV) analyzed in batch 680-396964 was outside the method criteria for the following analyte(s): Dibenz(a,h)anthracene, Fluoranthene, Indeno[1,2,3-cd]pyrene and o-Terphenyl . A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method(s) 8270D_LL_PAH: The following samples was diluted due to the nature of the sample matrix : CV0511S-GS-6 (680-115692-62) and CV0511G-CS-6 (680-115692-69). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Method(s) 8270D_LL_PAH: Surrogate recovery was outside acceptance limits for the following matrix spike (MS) sample: CV0511AA-CS-24 (680-115692-61[MS]). The parent sample's surrogate recovery was within limits. The MS/MSD sample has been qualified and reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

METALS (ICP)

Samples CV0511AA-CS-24 (680-115692-61), CV0511S-GS-6 (680-115692-62), CV0511S-GS-12 (680-115692-63), CV0511S-GS-18 (680-115692-64), CV0511D-GS-6 (680-115692-65), CV0511D-GS-12 (680-115692-66), CV0511D-GS-18 (680-115692-67), CV0511D-GS-24 (680-115692-68), CV0511G-CS-6 (680-115692-69) and CV0511S-GS-24 (680-115692-70) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 08/18/2015 and analyzed on 08/20/2015.

Arsenic and Lead recoveries are outside criteria low for the MS and MSD of sample CV0511AA-CS-24 (680-115692-61) in batch 680-397264.

Refer to the QC report for details.

Samples CV0511S-GS-12 (680-115692-63)[10X] and CV0511S-GS-18 (680-115692-64)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS/MOISTURE

Samples CV0511AA-CS-24 (680-115692-61), CV0511S-GS-6 (680-115692-62), CV0511S-GS-12 (680-115692-63), CV0511S-GS-18 (680-115692-64), CV0511D-GS-6 (680-115692-65), CV0511D-GS-12 (680-115692-66), CV0511D-GS-18 (680-115692-67), CV0511D-GS-24 (680-115692-68), CV0511G-CS-6 (680-115692-69) and CV0511S-GS-24 (680-115692-70) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 08/18/2015.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

ATTACHMENT C

QUALIFIED SAMPLE RESULTS

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511AA-CS-24 | Lab Sample ID: 680-115692-61

Matrix: Solid | Lab File ID: 1KH19009.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 08:15

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 29.90(g) | Date Analyzed: 08/19/2015 15:12

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 19.1 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 396964 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.3	U	8.3	4.1
208-96-8	Acenaphthylene	8.3	U	8.3	4.1
120-12-7	Anthracene	8.3	U	8.3	4.1
56-55-3	Benzo[a]anthracene	8.3	U	8.3	4.1
50-32-8	Benzo[a]pyrene	1.8	J	8.3	1.5
205-99-2	Benzo[b]fluoranthene	8.3	U	8.3	4.1
191-24-2	Benzo[g,h,i]perylene	8.3	U	8.3	4.1
207-08-9	Benzo[k]fluoranthene	8.3	U	8.3	2.5
218-01-9	Chrysene	8.3	U	8.3	4.1
53-70-3	Dibenz(a,h)anthracene	8.3	U UJ	8.3	4.1
206-44-0	Fluoranthene	8.3	U UJ	8.3	4.1
86-73-7	Fluorene	8.3	U	8.3	4.1
193-39-5	Indeno[1,2,3-cd]pyrene	8.3	U UJ	8.3	4.1
90-12-0	1-Methylnaphthalene	8.3	U	8.3	3.8
91-57-6	2-Methylnaphthalene	8.3	U	8.3	4.1
91-20-3	Naphthalene	8.3	U	8.3	4.1
85-01-8	Phenanthrene	8.3	U	8.3	3.0
129-00-0	Pyrene	8.3	U	8.3	4.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	130		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511S-GS-6 | Lab Sample ID: 680-115692-62

Matrix: Solid | Lab File ID: 1KH19023.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 08:20

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 30.35(g) | Date Analyzed: 08/19/2015 20:50

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 12.6 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 396964 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	76	U	76	37
208-96-8	Acenaphthylene	76	U	76	37
120-12-7	Anthracene	40	J	76	37
56-55-3	Benzo[a]anthracene	170		76	37
50-32-8	Benzo[a]pyrene	150		76	14
205-99-2	Benzo[b]fluoranthene	240		76	37
191-24-2	Benzo[g,h,i]perylene	94		76	37
207-08-9	Benzo[k]fluoranthene	70	J	76	23
218-01-9	Chrysene	180		76	37
53-70-3	Dibenz(a,h)anthracene	76	~~U~~ UJ	76	37
206-44-0	Fluoranthene	230	J	76	37
86-73-7	Fluorene	76	U	76	37
193-39-5	Indeno[1,2,3-cd]pyrene	66	~~J~~ J	76	37
90-12-0	1-Methylnaphthalene	76	U	76	35
91-57-6	2-Methylnaphthalene	44	J	76	37
91-20-3	Naphthalene	76	U	76	37
85-01-8	Phenanthrene	150		76	27
129-00-0	Pyrene	330		76	37

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511S-GS-12 | Lab Sample ID: 680-115692-63

Matrix: Solid | Lab File ID: 1KH19010.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 08:25

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 29.96(g) | Date Analyzed: 08/19/2015 15:36

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 10.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 396964 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	7.5	U	7.5	3.7
208-96-8	Acenaphthylene	7.5	U	7.5	3.7
120-12-7	Anthracene	7.5	U	7.5	3.7
56-55-3	Benzo[a]anthracene	4.2	J	7.5	3.7
50-32-8	Benzo[a]pyrene	4.3	J	7.5	1.3
205-99-2	Benzo[b]fluoranthene	10		7.5	3.7
191-24-2	Benzo[g,h,i]perylene	4.3	J	7.5	3.7
207-08-9	Benzo[k]fluoranthene	3.0	J	7.5	2.2
218-01-9	Chrysene	7.7		7.5	3.7
53-70-3	Dibenz(a,h)anthracene	7.5	~~U~~ UJ	7.5	3.7
206-44-0	Fluoranthene	5.7	J	7.5	3.7
86-73-7	Fluorene	7.5	U	7.5	3.7
193-39-5	Indeno[1,2,3-cd]pyrene	7.5	~~U~~ UJ	7.5	3.7
90-12-0	1-Methylnaphthalene	7.5	U	7.5	3.5
91-57-6	2-Methylnaphthalene	7.5	U	7.5	3.7
91-20-3	Naphthalene	7.5	U	7.5	3.7
85-01-8	Phenanthrene	4.1	J	7.5	2.7
129-00-0	Pyrene	7.0	J	7.5	3.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	126		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511S-GS-18 | Lab Sample ID: 680-115692-64

Matrix: Solid | Lab File ID: 1YF20009.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 08:30

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 30.37(g) | Date Analyzed: 08/20/2015 16:40

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 11.4 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 397188 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	7.5	U	7.5	3.7
208-96-8	Acenaphthylene	7.5	U	7.5	3.7
120-12-7	Anthracene	7.5	U	7.5	3.7
56-55-3	Benzo[a]anthracene	7.5	U	7.5	3.7
50-32-8	Benzo[a]pyrene	7.5	U	7.5	1.3
205-99-2	Benzo[b]fluoranthene	7.5	U	7.5	3.7
191-24-2	Benzo[g,h,i]perylene	7.5	U	7.5	3.7
207-08-9	Benzo[k]fluoranthene	7.5	U	7.5	2.2
218-01-9	Chrysene	7.5	U	7.5	3.7
53-70-3	Dibenz(a,h)anthracene	7.5	U	7.5	3.7
206-44-0	Fluoranthene	7.5	U	7.5	3.7
86-73-7	Fluorene	7.5	U	7.5	3.7
193-39-5	Indeno[1,2,3-cd]pyrene	7.5	U	7.5	3.7
90-12-0	1-Methylnaphthalene	7.5	U	7.5	3.5
91-57-6	2-Methylnaphthalene	7.5	U	7.5	3.7
91-20-3	Naphthalene	7.5	U	7.5	3.7
85-01-8	Phenanthrene	7.5	U	7.5	2.7
129-00-0	Pyrene	7.5	U	7.5	3.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	79		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511D-GS-6 | Lab Sample ID: 680-115692-65

Matrix: Solid | Lab File ID: 1YF20010.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 10:00

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 30.09(g) | Date Analyzed: 08/20/2015 17:08

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 19.5 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 397188 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.3	U	8.3	4.1
208-96-8	Acenaphthylene	8.3	U	8.3	4.1
120-12-7	Anthracene	8.3	U	8.3	4.1
56-55-3	Benzo[a]anthracene	13		8.3	4.1
50-32-8	Benzo[a]pyrene	11		8.3	1.5
205-99-2	Benzo[b]fluoranthene	16		8.3	4.1
191-24-2	Benzo[g,h,i]perylene	7.3	J	8.3	4.1
207-08-9	Benzo[k]fluoranthene	6.1	J	8.3	2.5
218-01-9	Chrysene	12		8.3	4.1
53-70-3	Dibenz(a,h)anthracene	8.3	U	8.3	4.1
206-44-0	Fluoranthene	23		8.3	4.1
86-73-7	Fluorene	8.3	U	8.3	4.1
193-39-5	Indeno[1,2,3-cd]pyrene	6.4	J	8.3	4.1
90-12-0	1-Methylnaphthalene	8.3	U	8.3	3.8
91-57-6	2-Methylnaphthalene	8.3	U	8.3	4.1
91-20-3	Naphthalene	8.3	U	8.3	4.1
85-01-8	Phenanthrene	17		8.3	3.0
129-00-0	Pyrene	18		8.3	4.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	87		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511D-GS-12 | Lab Sample ID: 680-115692-66

Matrix: Solid | Lab File ID: 1KH19013.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 10:05

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 30.08(g) | Date Analyzed: 08/19/2015 16:49

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 23.1 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 396964 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	33		8.7	4.3
208-96-8	Acenaphthylene	8.7	U	8.7	4.3
120-12-7	Anthracene	80		8.7	4.3
56-55-3	Benzo[a]anthracene	160		8.7	4.3
50-32-8	Benzo[a]pyrene	140		8.7	1.6
205-99-2	Benzo[b]fluoranthene	220		8.7	4.3
191-24-2	Benzo[g,h,i]perylene	83		8.7	4.3
207-08-9	Benzo[k]fluoranthene	81		8.7	2.6
218-01-9	Chrysene	170		8.7	4.3
53-70-3	Dibenz(a,h)anthracene	27	J	8.7	4.3
206-44-0	Fluoranthene	320	J	8.7	4.3
86-73-7	Fluorene	33		8.7	4.3
193-39-5	Indeno[1,2,3-cd]pyrene	60	J	8.7	4.3
90-12-0	1-Methylnaphthalene	9.3		8.7	4.0
91-57-6	2-Methylnaphthalene	12		8.7	4.3
91-20-3	Naphthalene	18		8.7	4.3
85-01-8	Phenanthrene	280		8.7	3.1
129-00-0	Pyrene	330		8.7	4.3

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	78		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511D-GS-18 | Lab Sample ID: 680-115692-67

Matrix: Solid | Lab File ID: 1KH19014.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 10:10

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 29.96(g) | Date Analyzed: 08/19/2015 17:14

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 15.5 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 396964 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	7.9	U	7.9	3.9
208-96-8	Acenaphthylene	7.9	U	7.9	3.9
120-12-7	Anthracene	7.9	U	7.9	3.9
56-55-3	Benzo[a]anthracene	7.9	U	7.9	3.9
50-32-8	Benzo[a]pyrene	1.5	J	7.9	1.4
205-99-2	Benzo[b]fluoranthene	7.9	U	7.9	3.9
191-24-2	Benzo[g,h,i]perylene	7.9	U	7.9	3.9
207-08-9	Benzo[k]fluoranthene	7.9	U	7.9	2.4
218-01-9	Chrysene	7.9	U	7.9	3.9
53-70-3	Dibenz(a,h)anthracene	7.9	~~U~~ UJ	7.9	3.9
206-44-0	Fluoranthene	7.9	~~U~~ UJ	7.9	3.9
86-73-7	Fluorene	7.9	U	7.9	3.9
193-39-5	Indeno[1,2,3-cd]pyrene	7.9	~~U~~ UJ	7.9	3.9
90-12-0	1-Methylnaphthalene	7.9	U	7.9	3.7
91-57-6	2-Methylnaphthalene	7.9	U	7.9	3.9
91-20-3	Naphthalene	7.9	U	7.9	3.9
85-01-8	Phenanthrene	7.9	U	7.9	2.8
129-00-0	Pyrene	7.9	U	7.9	3.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	125		36-131

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511D-GS-24 | Lab Sample ID: 680-115692-68

Matrix: Solid | Lab File ID: 1YF20011.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 10:15

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 29.97(g) | Date Analyzed: 08/20/2015 17:35

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 17.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 397188 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	8.2	U	8.2	4.0
208-96-8	Acenaphthylene	8.2	U	8.2	4.0
120-12-7	Anthracene	8.2	U	8.2	4.0
56-55-3	Benzo[a]anthracene	8.2	U	8.2	4.0
50-32-8	Benzo[a]pyrene	1.9	J	8.2	1.5
205-99-2	Benzo[b]fluoranthene	4.2	J	8.2	4.0
191-24-2	Benzo[g,h,i]perylene	8.2	U	8.2	4.0
207-08-9	Benzo[k]fluoranthene	8.2	U	8.2	2.4
218-01-9	Chrysene	8.2	U	8.2	4.0
53-70-3	Dibenz(a,h)anthracene	8.2	U	8.2	4.0
206-44-0	Fluoranthene	8.2	U	8.2	4.0
86-73-7	Fluorene	8.2	U	8.2	4.0
193-39-5	Indeno[1,2,3-cd]pyrene	8.2	U	8.2	4.0
90-12-0	1-Methylnaphthalene	8.2	U	8.2	3.8
91-57-6	2-Methylnaphthalene	8.2	U	8.2	4.0
91-20-3	Naphthalene	8.2	U	8.2	4.0
85-01-8	Phenanthrene	8.2	U	8.2	2.9
129-00-0	Pyrene	8.2	U	8.2	4.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	84		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511G-CS-6 | Lab Sample ID: 680-115692-69

Matrix: Solid | Lab File ID: 1KH19024.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 10:30

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 30.35(g) | Date Analyzed: 08/19/2015 21:14

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 11.3 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 396964 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	75	U	75	37
208-96-8	Acenaphthylene	75	U	75	37
120-12-7	Anthracene	75	U	75	37
56-55-3	Benzo[a]anthracene	360		75	37
50-32-8	Benzo[a]pyrene	610		75	13
205-99-2	Benzo[b]fluoranthene	1000		75	37
191-24-2	Benzo[g,h,i]perylene	640		75	37
207-08-9	Benzo[k]fluoranthene	410		75	22
218-01-9	Chrysene	470		75	37
53-70-3	Dibenz(a,h)anthracene	190	J	75	37
206-44-0	Fluoranthene	290		75	37
86-73-7	Fluorene	75	U	75	37
193-39-5	Indeno[1,2,3-cd]pyrene	430		75	37
90-12-0	1-Methylnaphthalene	75	U	75	35
91-57-6	2-Methylnaphthalene	75	U	75	37
91-20-3	Naphthalene	75	U	75	37
85-01-8	Phenanthrene	150		75	27
129-00-0	Pyrene	490		75	37

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-115692-4

SDG No.: 680-115692-04

Client Sample ID: CV0511S-GS-24 | Lab Sample ID: 680-115692-70

Matrix: Solid | Lab File ID: 1YF20012.D

Analysis Method: 8270D_LL_PAH | Date Collected: 08/13/2015 08:35

Extract. Method: 3546 | Date Extracted: 08/18/2015 09:27

Sample wt/vol: 30.26(g) | Date Analyzed: 08/20/2015 18:02

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 13.8 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 397188 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	7.7	U	7.7	3.8
208-96-8	Acenaphthylene	7.7	U	7.7	3.8
120-12-7	Anthracene	7.7	U	7.7	3.8
56-55-3	Benzo[a]anthracene	7.7	U	7.7	3.8
50-32-8	Benzo[a]pyrene	7.7	U	7.7	1.4
205-99-2	Benzo[b]fluoranthene	7.7	U	7.7	3.8
191-24-2	Benzo[g,h,i]perylene	7.7	U	7.7	3.8
207-08-9	Benzo[k]fluoranthene	7.7	U	7.7	2.3
218-01-9	Chrysene	7.7	U	7.7	3.8
53-70-3	Dibenz(a,h)anthracene	7.7	U	7.7	3.8
206-44-0	Fluoranthene	7.7	U	7.7	3.8
86-73-7	Fluorene	7.7	U	7.7	3.8
193-39-5	Indeno[1,2,3-cd]pyrene	7.7	U	7.7	3.8
90-12-0	1-Methylnaphthalene	7.7	U	7.7	3.6
91-57-6	2-Methylnaphthalene	7.7	U	7.7	3.8
91-20-3	Naphthalene	7.7	U	7.7	3.8
85-01-8	Phenanthrene	7.7	U	7.7	2.8
129-00-0	Pyrene	7.7	U	7.7	3.8

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	78		36-131